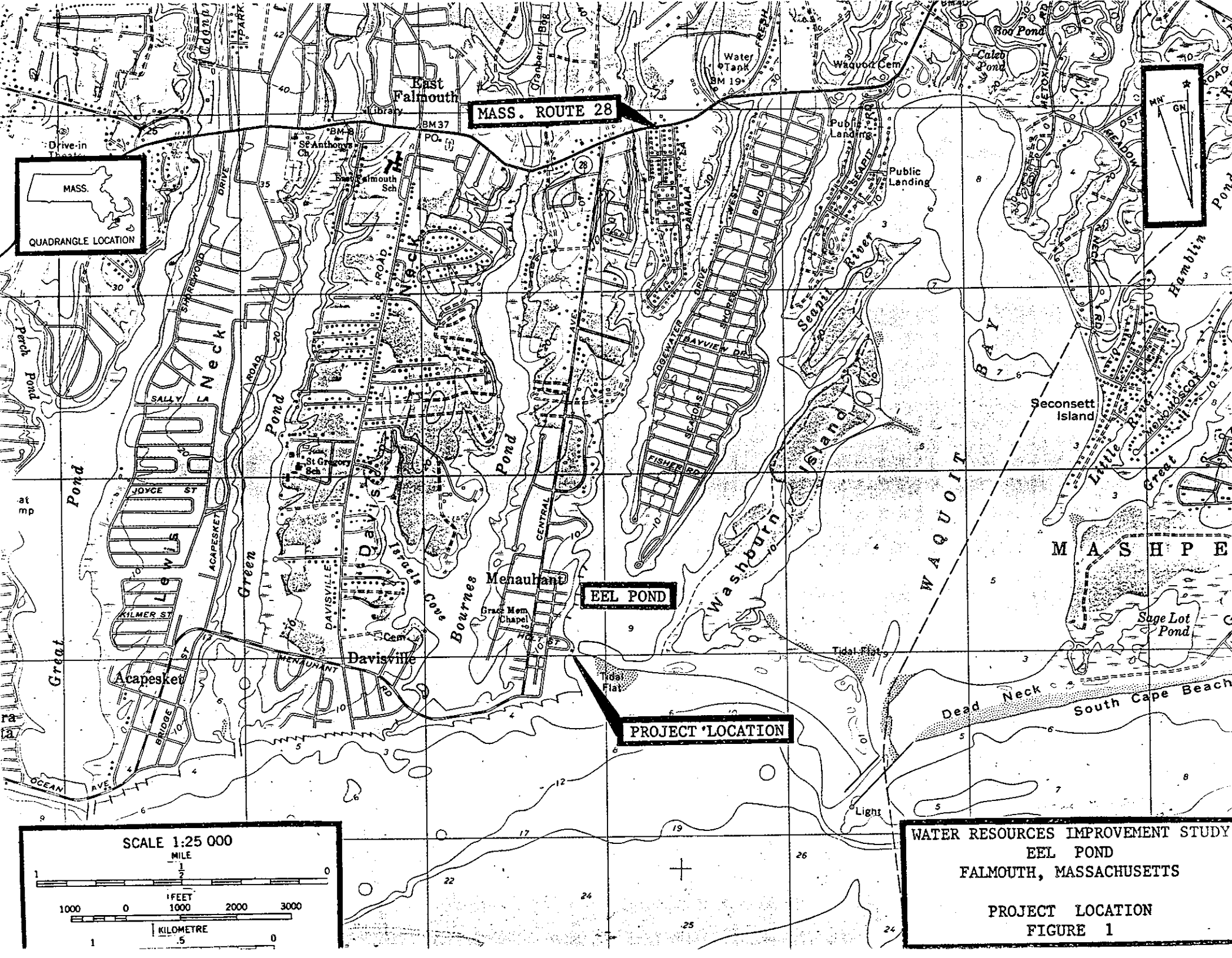
EEL POND INLET
MENAUHANT
EAST FALMOUTH, MASSACHUSETTS

SMALL NAVIGATION PROJECT
RECONNAISSANCE REPORT

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
NEW ENGLAND DIVISION

MAY 1978



WATER RESOURCES IMPROVEMENT STUDY
EEL POND
FALMOUTH, MASSACHUSETTS

PROJECT LOCATION
FIGURE 1

EEL POND, FALMOUTH, MASSACHUSETTS

1. Authority: This reconnaissance report is submitted under the authority of Section 107 of the 1960 River and Harbor Act, as amended.

2. Purpose and Extent of Study: The purpose of this study is to determine the economic justification and the environmental acceptability for undertaking further detailed study of navigation improvements in Eel Pond. The study was developed using information obtained from the town of Falmouth, concerned citizens and a reconnaissance investigation of the area.

3. Description: The town of Falmouth is located on the south shore of Cape Cod, Massachusetts. Primarily a summer resort community, the Falmouth coastline consists of numerous harbors and inlets ideal for recreational boaters during the summer months. Eel Pond, one of the larger boating areas, is ideally situated for easy access and utilization to the extent that it has become a haven for numerous recreational boats. Two hours driving time from Boston, Eel Pond is accessible by State Route 28 with further access attainable via the Falmouth airport, located approximately one mile north of Eel Pond.

Eel Pond, as shown on attached map, is formed by Menauhant to the west and Washburn Island to the east. In addition, a peninsula running north to south effectively divides the pond into an eastern and western branch. The western section in accessible only from the south, but the eastern branch can also be reached by travelling through Waquoit Bay and the Seapit River.

Eel Pond has an average MLW depth of 5 feet and a tidal range of 1.3 feet. The locality is shown on U.S. Geological Map titled "Falmouth" and the U.S. Coast and Geodetic Survey Charts Numbered 249, 1209, and 1210.

4. Economy: The town of Falmouth is primarily a summer resort area. Located on Cape Cod, large numbers of boating enthusiasts, sports fishermen, and tourists visit the area each year. The town has a winter population of 21,000 which swells to a population of 60,000 to 65,000 during the summer months. The major industries are in the service related fields, particularly in regard to the summer vacationers. The boating industry also plays an important role in the town's economy. Repair facilities, supply and fuel establishments are main employers during the boating season. Although the Falmouth fleet consists mainly of recreational boats, there are approximately 55 fishing vessels registered in the town as well as 15 to 20 Coast Guard vessels.

5. Bridges: There are no bridges within the limits of the study area.

6. Existing Project: There is no existing federal navigation project within Eel Pond at the present time. However, a federal survey study was authorized under the 1960 River and Harbor Act, but was never funded due to a lack of local interest until recent years, when a Section 107 study was requested.

7. Other Developments: The Commonwealth of Massachusetts in 1953 constructed a jetty on the west side of Eel Pond entrance in an attempt to inhibit the easterly flow of littoral drift. The jetty was constructed to a length of 300 feet with a crest width of 5 feet and a top elevation of 6 feet above MLW. However, the jetty apparently failed to completely prevent material from entering the access channel due apparently to a local reversal of littoral drift. The Commonwealth, therefore, dredged an access channel and anchorage to a depth of 6 feet This project alleviated navigation difficulties in Eel Pond for approximately 10 years, but by 1966 problems were recurring which prompted the state to once again dredge the harbor. In 1968 the Eel Pond entrance was dredged to a width of 150 feet for a length of 850 feet on the western side of the channel and 650 feet on the eastern side. In addition, the anchorage basin was dredged for a width of 150 feet and a length of 500 feet. Overall depth of the project was 7 feet. Since 1968 the Commonwealth of Massachusetts has not undertaken further operations in regard to Eel Pond.

Local dredging occurred in 1967 when the Menauhant Yacht Club dredged the area around its pier to a depth of 4 feet. The town has constructed two town ramps for the launching of recreational vessels. Since the 1967 work by local interests and the 1968 state dredging no other dredging has occurred.

Although navigation improvements have ceased in recent years by the town and state, the local community has plans to further upgrade the Eel Pond area. The list of proposed improvements as of 1977 include the construction of an additional town launching ramp for use by small recreational boats, the acquisition of Washburn Island for public recreational use, and the preservation of 80 acres of land with approximately one mile of shorefront on the Childs River and Eel Pond.

8. Terminal and Transfer Facilities: A small off-loading facility which handles the local shellfish production is established within the Seapit River. No similar facilities exist within Eel Pond itself save for those maintained by the yacht clubs and boatyard which primarily handle small supplies and equipment.

9. Improvements Desired: At several meetings, the following improvements were requested by local interests for consideration:

a. An access channel from deepwater in Vineyard Sound to a point off the southwest coast of Washburn Island.

b. Construction of riprap or dune grass to prohibit further erosion of Washburn Island.

c. Construction of a jetty or jetties to prevent and limit littoral drift from entering the access channel.

10. Existing and Prospective Commerce: At the present time, commercial activity in Eel Pond consists of 1 boatyard, the facilities provided by 2 yacht clubs, and the harvesting of shellfish. Although exact monetary figures to determine the value of the boatyard and yacht clubs do not exist, tax statements for the year 1975 indicate the members of the two yacht clubs accounted for $400,000 in revenues to the town, and the 1975 payroll of the 1 boatyard totalled $120,000. The harvesting of shellfish within Eel Pond and adjacent Seapit River yielded in 1976 approximately 150 bushels of clams, 3500 bushels of quahogs, and 2,065 bushels of scallops. The value of the 1976 yield is approximately $117,000.

The future prospects for commercial development within Eel Pond are limited. Primarily a residential area, it is unlikely further development would be permitted. However, prospects for the development of an additional boatyard do exist should navigation improvements be made that would permit larger vessels to navigate the entrance to the pond.

11. Vessel Traffic: There are no formal statistics on vessel trips within Eel Pond. However, a survey of the area indicates that approximately 650 recreational vessels presently utilize the pond. Assuming each boat makes 2 round trips per week during an 18-week boating season, than approximately 23,400 round trips are made annually within Eel Pond.

12. Difficulties Attending Navigation: The primary center of difficulty within Eel Pond is the entrance channel. Easterly littoral drift and erosion from neighboring Washburn Island have deprived the entrance of much of its depth and width. With a depth of 3 feet and a width of 60 feet, the entrance has become a safety hazard to boats navigating Eel Pond. Compounding the difficulty of navigating the channel, 2 large sand bars have formed on both sides of the entrance. The first, located approximately 25 feet southeast of the entrance, is particularly hazardous at mid tides when the shoal is invisible to unknowledgeable boaters who may visit the pond. The second shoal, located in the pond

itself, is northeast of the entrance and poses the same difficulties and hazards as the offshore bar. A further hazard is the existence of 3 state constructed groins east of the entrance which have lapsed into disrepair and are for the most part undetectable at all but low tide. Although the structures are no threat to boat traffic under normal circumstances, the lack of a proper channel in many instances forces boaters to navigate dangerously close to dilapidated stonework. Local officials aware of the hazard have resorted to marking the locations in an attempt to aid the boaters. The navigation difficulties as outlined above are attributable to many of the boating accidents experienced in the area and the channel conditions also restrict the potential of further recreational boating growth within the pond.

13. Water Power and Other Special Features: There are no problems in Eel Pond pertaining to water power, flood control, or other related resources.

14. Project Formulation: Consideration has been given to all feasible plans of improvement, with main consideration given to the requests made by local interests. The improvements desired consist of establishing an adequate depth of water in the entrance channel and of stabilizing the width and length of the channel.

For purposes of this study, quantity estimates in regard to material within the channel, have been taken from a pre-dredge survey map dated 1967, produced by the Commonwealth of Massachusetts Department of Public Works. Based on the state map, the average channel depth has been assumed to be 4 feet, i.e., the similar condition prior to state dredging. The 4-foot depth is considered inadequate to meet the present and future needs of the Eel Pond recreational fleet. A survey of the class and type of vessels in the area indicate that a depth of 6 feet is warranted. Therefore, all plans analyzed in this report have involved a minimum channel depth of 6 feet.

As in any recreational boat study, the cost of construction is of prime concern to the local authorities. One of the aims of this report is to devise a plan of improvement with a low first cost while still meeting local needs and assuring that safety requirements are met. Using this procedure, one of the factors studied dealt with the the width of the channel and the minimum amount of dredging required with an aim of holding down project costs. However, the safety of the boaters must also be considered. Thus, while a channel width of 60 feet may have a lower first cost, the volume of traffic within Eel Pond necessitates the construction of a minimum channel width of 100 feet. Therefore, the minimum channel dimensions are considered to be a 100-foot width and a 6-foot depth, approximately 2700 feet in length extending from deep water in Vineyard Sound to a point off the southwest coast of Washburn Island. For the purposes of this report, benefits to the

recreational fleet have been divided into 4 categories: the existing fleet, new boats added immediately after improvement, new boats over a 25-year growth period, and reduction in boat damages. Data regarding the existing fleet was compiled through a field survey of the types, classes, and number of boats utilizing Eel Pond. Determination of the expected future fleet, should improvements occur, have been developed through discussions with local officials. The types of vessels expected in the future were drawn from the existing fleet on a percentage bases. Initial analyses indicates that approximately 84% of the existing feet is under 30 feet in length. Therefore, the future fleet reflects the same percentage breakdown. In addition, damage estimates also reflect the fleet breakdown, as it has been assumed that the larger boats are more likely to run aground than that of a boat designed to draw less water and having a smaller beam. Of the 550 boats classified as under 30 feet in length, 5% are assumed to annually experience damage directly attributable to the inadequate navigation conditions. The remaining 100 boats classified as over 30 feet in length can be expected to incur annual damages of approximately 10%. The estimated benefits have been considered as a constant throughout the options studied, as all plans formulated are sufficient to meet the criteria and scope necessary to improve Eel Pond.

In an attempt to solve the navigation difficulties within Eel Pond, a number of alternative plans have been analyzed. The first alternative, known as Plan A, would call for the following improvements: an access channel 100 feet wide with a depth of 6 feet for a length of 2700 feet; secondly, 3 - 500 foot groins to prevent littoral drift from shoaling the access channel. In regard to the emplacement of the groins, the first would parallel the channel, and the other two would be placed at 400-foot intervals from each other. Shown on Map A, the 3 groins may add stability to Washburn Island which according to historical evidence is in a constant state of change. The first cost of Plan A, as shown on Table I, is estimated at over $1,000,000 with the local share in excess of $500,000. Due to the high cost of Plan A, and the unlikelihood of local participation, a second option was analyzed which did not include the construction of groins. In lieu of the groin system, two plans were developed using riprap with an aim towards forestalling and diminishing material on Washburn Island from depositing in the access channel.

TABLE I

Estimate of Cost-Plan A	
Dredging (ordinary material) - Channel 6'x100'x2,700'	
5700 c.y. at $4/c.y.	$22,800
Contingencies (15%)	3,400
Engineering and design	2,100
Supervision and Administration	2,100
Subtotal	$30,400

TABLE I cont.

Construction (groins)		
3 groins 500' at $500/lin ft.		$ 750,000
Contingencies (20%)		150,000
Engineering and Design		72,000
Supervision and Administration		72,000
Subtotal		$1,044,000
Total Cost Plan A		$1,074,400
	say	$1,074,000

Plans B and C call for the construction of an access channel same as for Plan A, but with the construction of riprap to insure the stability of Washburn Island and to prevent wind blown sand from entering the access channel in unacceptable quantities. Because of the configuration of Washburn Island and the lack of definitive data regarding its stability, Plan B envisions a riprap system encompassing the entire length of the southern shore of the island including the westerly spit. Total length of the system, as shown on Map B, would be approximately 8,000 feet. Plan C, a smaller version of Plan B, would include an access channel and a rip-rap system extending from the northwest shore of Washburn Island 4,500 feet to the south shore. As shown on Map C, this plan would protect the western shore of the island against possible separation from the main body of land. The first costs of Plans B and C are shown on Tables II and III respectively. As the tables indicate, the two plans would have a higher first cost than that of Plan A. Participation by the town of Falmouth in the above-mentioned plans is doubtful due to the excessive initial cost. Therefore, an additional option known as Plan D has been formulated with the aim of establishing an acceptable plan of improvement.

TABLE II

Estimate of Cost-Plan B		
Dredging (ordinary material) - Channel 6'x100'x2,700'		
5700 c.y. at $4/c.y.		$22,800
Contingencies (15%)		3,400
Engineering and Design		2,100
Supervision and Administration		2,100
Subtotal		$30,400
Construction (Rip Rap)		
8000 ft at $250/lin ft		$2,000,000
Contingencies (20%)		400,000
Engineering and Design		192,000
Supervision and Administration		192,000
Subtotal		$2,784,000
Total Cost Plan C		$2,814,400
	say	$2,814,000

TABLE III

Estimate of Cost-Plan C		
Dredging (ordinary material) - channel 6'x100'x2,700'		
5700 c.y. at $4/c.y.		$22,800
Contingencies (15%)		3,400
Engineering and Design		2,100
Supervision and Administration		2,100
Subtotal		$30,400
Construction (Rip Rap)		
4500 ft at $250/lin ft		$1,125,000
Contingencies (20%)		225,000
Engineering and Design		108,000
Supervision and Administration		108,000
Subtotal		$1,566,000
Total Cost Plan C		$1,596,400
	say	$1,596,000

Plan D would provide for the dredging of an access channel without any structures. While conditions around Eel Pond entrance are very dynamic, it may be determined that establishment of a channel 6'x100'x 2,700' without stabilizing structures could be accomplished through a moderate maintenance program. The amount of material to be removed is relatively small, and past projects conducted by the Commonwealth of Massachusetts indicate that the access channel will shoal at an annual rate of approximately 10%. However, a rate of 20% has been used for project analyses. The first cost of Plan D is shown on Table IV. As indicated, the first cost is estimated at $30,000 and would likely be acceptable to the town of Falmouth.

TABLE IV

Estimate of Cost Plan D		
Dredging (ordinary material) - Channel 6'x100'x2,700'		
5700 c.y. at $4 c.y.		$22,800
Contingencies (15%)		3,400
Engineering and Design		2,100
Supervision and Administration		2,100
Total Cost Plan D		$30,400
	say	$30,000

All plans analyzed could probably solve the navigation difficulties within Eel Pond. However, the large first cost of Plans A, B, and C effectively rule out these plans for further consideration from the point of view of non-federal participation. Plan D appears to be the most acceptable plan of improvement. For purposes of comparison, Table V lists the benefit cost ratio of all four plans and as shown, Plan D with a benefit cost ratio of 18.9 is significantly higher than the remaining three options. In determining the annual charges

for the 4 plans, a 2% annual maintenance average has been used for the groins and the riprap. In regard to the channel, a shoaling rate of 5% has been used in Plans A, B, and C, a rate of 20% has been used for Plan D.

TABLE V
Comparisons of Benefits and Cost

	Annual Benefits	Annual Charges	B/C Ratio
Plan A	$157,000	$91,000	1.7
Plan B	$157,000	$248,300	0.6
Plan C	$157,000	$139,100	1.1
Plan D	$157,000	$8,300	18.9

15. Plan of Improvement: The proposed plan of improvement would provide for widening the existing channel to a width of 100 feet at a depth of 6 feet for a length of 2700 feet, beginning at deep water in Vineyard Sound and extending to the eastern shore of Menauhant.

These improvements are expected to provide Eel Pond with an access channel of sufficient depth and width to serve the current and future demands of the waterway.

16. Shoreline Changes: The improvement considered is not expected to change the configuration of the adjacent shoreline.

17. Required Aids to Navigation: Specific navigational aids will have to be determined in the Detailed Project Report stage. However, an estimate has been made for this report.

18. Estimate of First Cost: The plan of improvement would involve dredging the access channel with cost of construction shared by federal and non-federal interests. Maintenance of the dredged areas will be a federal responsibility and the U.S. Coast Guard would provide and maintain all navigational aids. The estimated first cost is based on May 1978 price levels and includes an allowance for contingencies.

PROJECT COST ESTIMATES

Proposed Plan of Improvement

Federal and Local

Dredging (ordinary material) 5,700 c.y. at $4/c.y.		$22,800
Contingencies (15%)		3,400
Subtotal		$26,200
Engineering and Design		2,100
Supervision and Administration		2,100
Subtotal		$30,400
U.S. Coast Guard Aids to Navigation		1,000
Total Cost		$31,400
	say	$31,000

19. Estimate of Benefits: Improvement of the Eel Pond entrance would result in substantial benefits to existing and prospective recreational boating interests. Recreational benefits have been computed on the basis of net annual return to boat owners if their respective boats were for hire and in accordance with the established policy of the Corps of Engineers.

Evaluation of the benefits was made for the existing fleet as determined by a thorough survey of existing facilities. Benefits were also evaluated for new boats expected to be attracted to the project immediately after improvement is made, as well as for new boats attracted to the project within a 25-year growth period. Local boating interests were interviewed as to the extent of their respective short term and long range development plans. The magnitude of future growth was thus determined. Reduction in boat damages was also estimated, but these benefits represent but a small part of the total benefits.

The estimated benefits are presented in Tables VI, VII, VIII, and IX, respectively.

TABLE VI BENEFITS TO RECREATIONAL BOATING

EXISTING FLEET

HARBOR:

TYPE OF CRAFT	LENGTH (feet)	# of Boats	DEPRECIATED VALUE Average $	DEPRECIATED VALUE Total $	PERCENT RETURN Ideal	% of Ideal Pres.	% of Ideal Fut.	Gain	VALUE $	ON CRUISE Avg. Days	ON CRUISE % of Season	ON CRUISE Value $
RECREATIONAL FLEET												
Outboards	15-20	200	3,600	720,000	13	90	100	1.30	9,360			
	21&Up	50	6,550	327,500	13	85	95	1.30	4,257			
Sterndrive	15-20	75	5,850	438,750	12	90	100	1.20	5,265			
	21-25	40	9,200	368,000	11	85	95	1.10	4,048			
	26&Up	25	18,150	453,750	10	85	95	1.00	4,537			
Inboards	15-20	30	6,600	198,000	12	90	100	1.20	2,376			
	21-30	25	13,500	337,500	12	85	95	1.20	4,050		9	364
	31-40	10	36,950	369,500	11	85	95	1.10	4,064		12	487
	41-50	8	87,600	700,800	10	80	95	1.50	10,512		20	2,102
	51-Up	3	174,900	524,700	9	75	95	1.80	9,444		30	2,833
Cruising Sailboats	15-20	55	4,300	236,500	8	90	100	0.80	1,892			
	21-30	40	13,550	542,000	8	85	95	0.80	4,336		5	216
	31-40	2	37,350	74,700	7	85	95	0.70	522		16	83
	41&Up	1	73,800	73,800	5	80	95	0.75	553		25	138
Daysailers	8-15	40	1,200	48,000	12	90	100	1.20	576			
	16-20	25	2,950	73,750	12	90	100	1.20	885			
	21-25	18	5,500	99,000	11	85	95	1.10	1,089		5	54
	26&Up	3	10,550	31,650	10	85	95	1.00	316		25	79
TOTALS		650		5,617,900					$68,082			$6,356

Net Annual Benefit $68,082 - 6,356 = $61,726
Say $61,700

1978 BOATING VALUES

TABLE VII BENEFITS TO RECREATIONAL BOATING

IMMEDIATELY AFTER IMPROVEMENTS

HARBOR:

TYPE OF CRAFT	LENGTH (feet)	# of Boats	DEPRECIATED VALUE Average $	DEPRECIATED VALUE Total $	PERCENT RETURN Ideal	% of Ideal Pres.	% of Ideal Fut.	PERCENT RETURN Gain	VALUE $	ON CRUISE Avg. Days	ON CRUISE % of Season	ON CRUISE Value $
RECREATIONAL FLEET												
Cutboards	15-20	16	3,600	57,600	13		100	13.0	7,488			
	21&Up	4	6,550	26,200	13		95	12.35	3,235			
Sterndrive	15-20	6	5,850	35,100	12		100	12.0	4,212			
	21-25	4	9,200	36,800	11		95	10.45	3,845			
	26&Up	1	18,150	18,150	10		95	9.50	1,724			
Inboards	15-20	2	6,600	13,200	12		100	12.0	1,584			
	21-30	1	13,500	13,500	12		95	11.40	1,539		9	138
	31-40	1	36,950	36,950	11		95	10.45	3,861		12	463
	41-50		87,600									
	51-Up		174,900									
Cruising Sailboats	15-20	5	4,300	21,500	8		100	8.0	1,720			
	21-30	4	13,550	54,200	8		95	7.60	4,119		5	205
	31-40		37,350									
	41&Up		73,800									
Daysailers	8-15	4	1,200	4,800	12		100	12.0	576			
	16-20	1	2,950	2,950	12		100	12.0	354			
	21-25	1	5,500	5,500	11		95	10.45	574		5	28
	26&Up		10,550									
TOTALS		50		$326,450					$34,831			$834

Net Annual Benefit $34,831 - 834 = $33,997
Say $34,000

1978 BOATING VALUES

TABLE VIII BENEFITS TO RECREATIONAL BOATING

25 YR. ST. LINE GROWTH

HARBOR:

TYPE OF CRAFT	LENGTH (feet)	# of Boats	DEPRECIATED VALUE Average $	DEPRECIATED VALUE Total $	PERCENT RETURN Ideal	% of Ideal Pres.	% of Ideal Fut.	Gain	VALUE $	ON CRUISE Avg. Days	ON CRUISE % of Season	ON CRUISE Value $
RECREATIONAL FLEET												
Cutboards	15-20	46	3,600	165,600	13		100	13.0	21,528			
	21&Up	12	6,550	78,600	13		95	12.35	9,707			
Sterndrive	15-20	18	5,850	105,300	12		100	12.0	12,636			
	21-25	10	9,200	92,000	11		95	10.45	9,614			
	26&Up	5	18,150	90,750	10		95	9.50	8,621			
Inboards	15-20	8	6,600	52,800	12		100	12.0	6,336			
	21-30	6	13,500	81,000	12		95	11.40	9,234		9	831
	31-40	2	36,950	73,900	11		95	10.45	7,722		12	926
	41-50	1	87,600	87,600	10		95	9.50	8,322		20	1,664
	51-Up		174,900									
Cruising Sailboats	15-20	12	4,300	51,600	8		100	8.0	4,128			
	21-30	10	13,550	135,500	8		95	7.60	10,298		5	514
	31-40		37,350									
	41&Up		73,800									
Daysailers	8-15	10	1,200	12,000	12		100	12.0	1,440			
	16-20	6	2,950	17,700	12		100	12.0	2,124			
	21-25	4	5,500	22,000	11		95	10.45	2,299		5	114
	26&Up		10,550									
TOTALS		150		1,066,350					$114,009			$4,049

Net Benefit $114,009 - 4,049 = $109,960
Say $110,000

25 yr. st. line growth
$110,000 x av. an. equivalent
$110,000 x 0.4938 = $54,318
Say $54,300 Net Annual Benefit

TABLE IX

Existing Fleet (Table VI)		$61,700
New Boats - Immediately After Improvements (Table VII)		34,000
New Boats - 25-year Growth (Table VIII)		54,300
Reduction of Boat Damage (Estimated)		7,100
Total		$157,100
	say	$157,000

20. Apportionment of Cost: The first cost of construction of the considered improvement is apportioned 50 percent federal and 50 percent non-federal.

21. Estimate of Annual Charges: Annual charges are based on an estimated project life of 50 years and an interest rate of 6 5/8% for both federal and non-federal charges. The annual charges for the proposed plan of improvement are as follows:

ANNUAL CHARGES

A.	Interest and Amortization ($31,000 x .06904)		2,100
B.	Annual Maintenance (1200 c.y. at $5/c.y.)		6,000
C.	Navigational Aids		500
	Total Annual Charges		$8,600
		say	$9,000

22. Comparison of Benefits and Costs: Benefits and costs as developed, produce a favorable benefit-cost ratio.

Benefits	Annual Charges	B/C Ratio
$157,000	$9,000	17.4

23. Local Conditions:

(1) Provide a cash contribution toward construction costs, determined in accordance with existing policies for regularly authorized projects, in view of recreational benefits, land enhancement benefits or similar type special and local benefits expected to accrue. The present basis for cost-sharing in recreational small-boat projects provides that the federal government will participate to not more than 50 percent of the first costs of general navigation facilities serving recreational traffic.

(2) Provide, maintain and operate without cost to the United States, an adequate public landing with provisions for the sale of motor fuel, lubricants and potable water open and available to the use of all on equal terms.

(3) Provide without cost to the United States all necessary lands, easements and rights-of-way required for construction and subsequent maintenance of the project inlcuding suitable spoil disposal areas with necessary retaining dikes, bulkheads, and embankments therefor.

(4) Hold and save the United States free from damages that may result from construction and maintenance of the project.

(5) Accomplish without cost to the United States alterations and relocations as required in sewer, water supply, drainage and other utility facilities. The recommended plan of improvement will not require the alteration or relocation of any existing facilities within Eel Pond.

(6) Provide and maintain berths, floats, piers, and similar marina and mooring facilities as needed for transient and local vessels as well as necessary access roads, parking areas and other needed public use shore facilities open and available to all on equal terms. Only minimum, basic facilities and service are required as part of the project. The actual scope or extent of facilities and services provided over and above the required minimum is a matter of local decision. The manner of financing such facilities and services is a local responsibility.

(7) Assume full responsibility for all project costs in excess of the federal cost limitation of $2,000,000.

(8) Establish regulations prohibiting discharge of untreated sewage, garbage, and other pollutants in the waters of the harbor by users thereof, which regulations shall be in accordance with applicable laws or regulations of federal, state and local authorities responsible for pollution prevention and control.

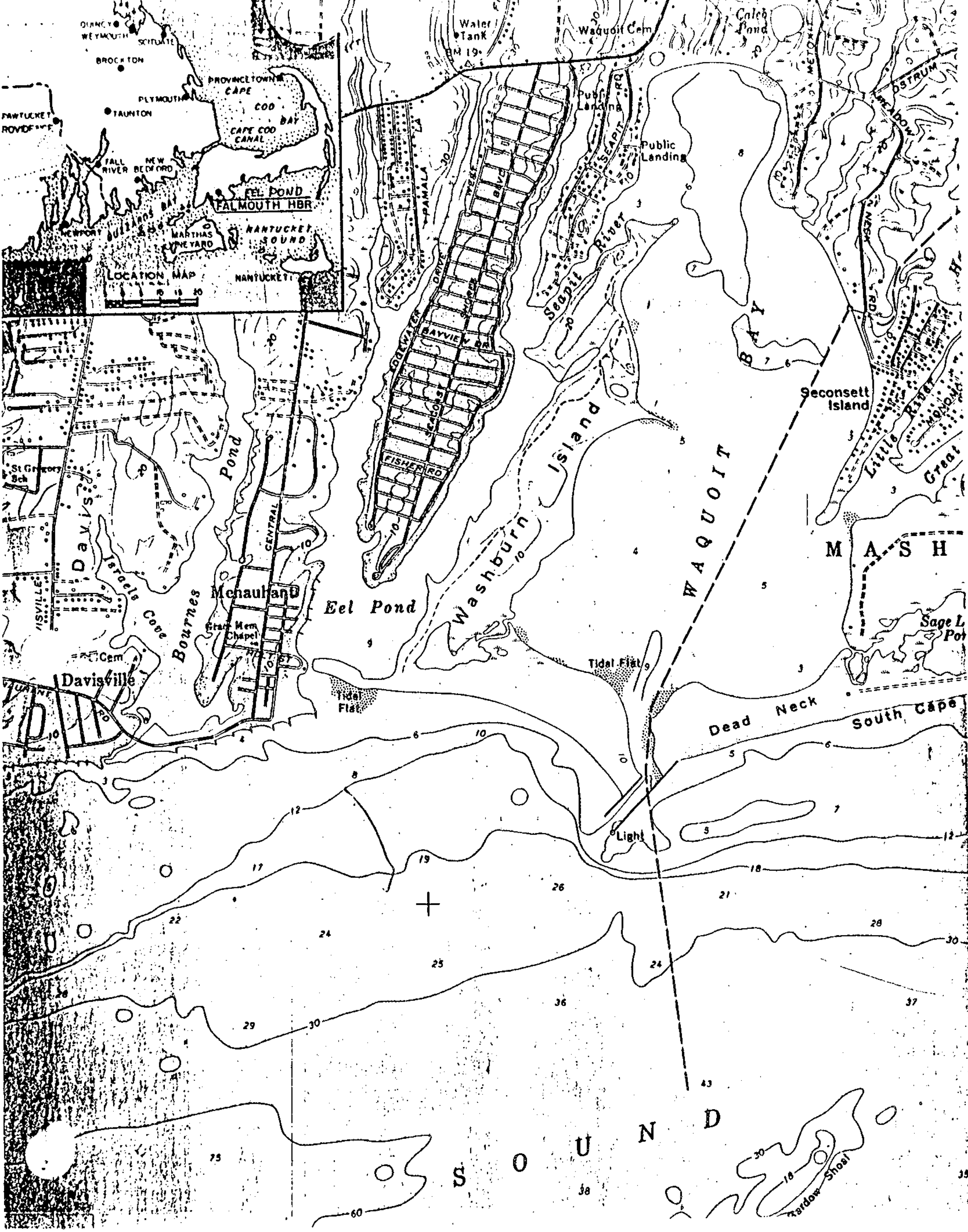
24. Environmental Impact: Pertinent environmental considerations will be studied in the Detailed Project Report stage. A cursory examination indicates that the material to be dredged consists of fine granular sand relatively free of pollutants. However, environmental samples and subsequent analysis will be necessary to minimize any potential adverse effects to the environment.

25. Discussion: On 25 January 1978, a meeting was held with officials of the town of Falmouth to discuss the availability of disposal sites and the status of Washburn Island which is privately owned. The meeting determined that the island would remain privately owned for the foreseeable future, thereby requiring this office to obtain a right of way permitting any and all activity that is deemed essential to insure Eel Pond with an adequate navigable access channel. Washburn Island is also apparently the only suitable site for disposal of dredged material. Although this site has been utilized in the past as a disposal area, appropriate environmental analyses must first be undertaken during the Detailed Project Report stage to insure the environment against potential adverse affects. In addition to the environmental aspects, the Detailed Project Report will include a hydrographic survey to accurately determine the existing conditions within the access channel. Based on the survey findings, the plans studied in this report as well

as other potential solutions to navigation difficulties in Eel Pond will be evaluated and studied in depth to reflect the additional information.

26. Recommendations: Further detailed study of Eel Pond, Falmouth, Massachsuetts is recommended.

6 Incl.
as


QUINCY
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BROCKTON
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CAPE
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BAY
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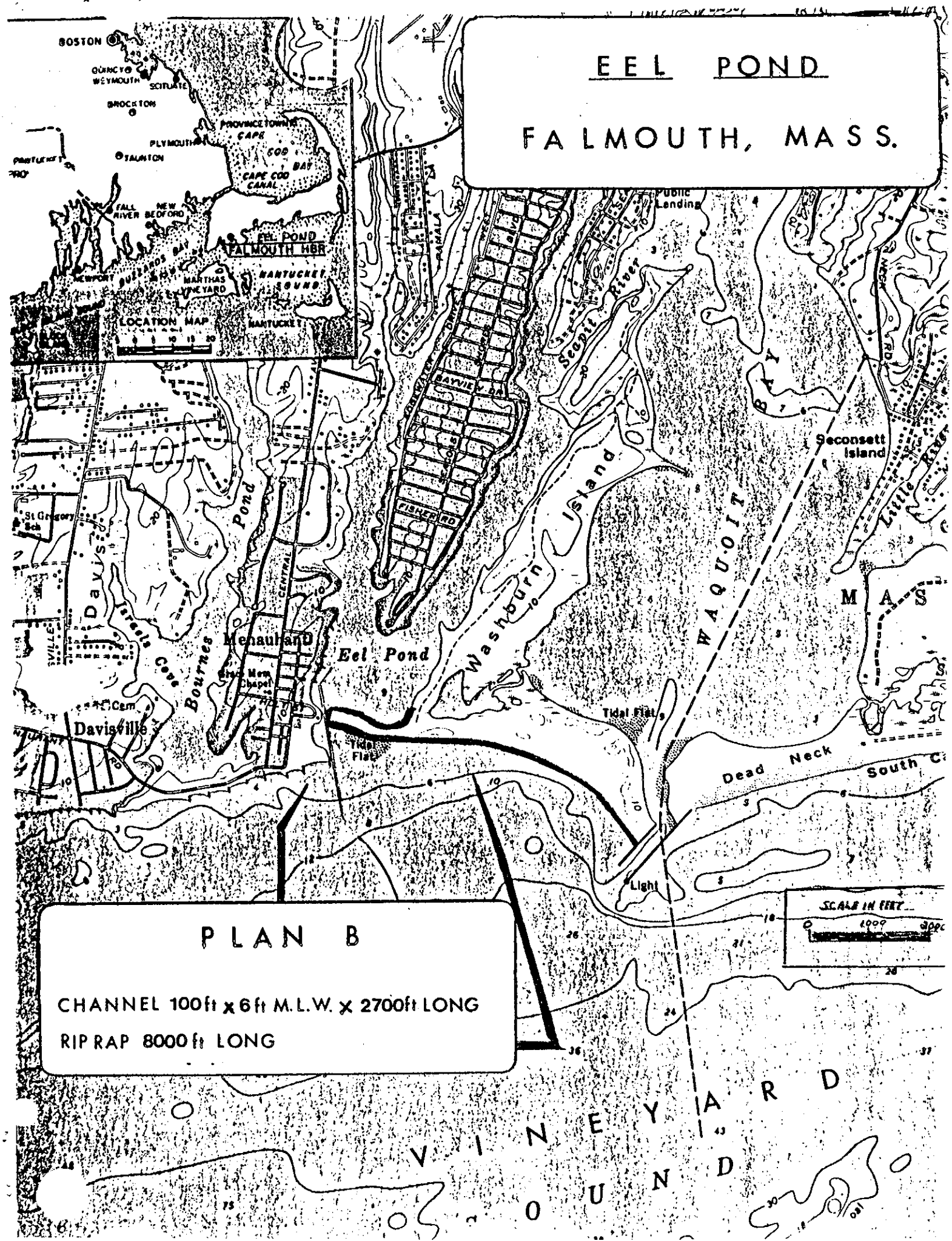
TAUNTON
PAWTUCKET
PROVIDENCE
FALL RIVER
NEW BEDFORD
EEL POND
FALMOUTH HBR
NEWPORT
MARTHAS VINEYARD
NANTUCKET SOUND
NANTUCKET
LOCATION MAP
Water Tank
Waquoit Cem
Caleb Pond
Public Landing
Public Landing
Seapit River
BAYVIEW DR
FISHER RD
CENTRAL
Bournes Pond
Israels Cove
Menauhant
Grace Mem Chapel
Cem
Davisville
St Gregory Sch
Eel Pond
Washburn Island
WAQUOIT
BAY
Seconsett Island
Little River
MASH
Sage L
Tidal Flat
Tidal Flat
Dead Neck
South Cape
Light
SOUND


EEL POND
FALMOUTH, MASS.
PLAN B
CHANNEL 100ft x 6ft M.L.W. x 2700ft LONG
RIP RAP 8000ft LONG
BOSTON
QUINCY & WEYMOUTH
SCITUATE
BROCKTON
PLYMOUTH
TAUNTON
PROVINCETOWN
CAPE COD BAY
CAPE COD CANAL
FALL RIVER
NEW BEDFORD
EEL POND
FALMOUTH HBR
NEWPORT
BUZZARDS BAY
MARTHAS VINEYARD
NANTUCKET SOUND
NANTUCKET
LOCATION MAP
Public Landing
Sippit River
Seconsett Island
Washburn Island
WAQUOIT BAY
Davis
Bournes Pond
Menauhant
Eel Pond
Tidal Flat
Davisville
Dead Neck
Light
SCALE IN FEET
VINEYARD SOUND

TOWN OF FALMOUTH
TOWN HALL
FALMOUTH, MASS. 02540

December 11, 1975

Division Engineer
N. E. Div. - Corps of Engineers
424 Trapelo Road
Waltham, MA 02154

RE: Eel Pond Entrance Channel and Pond
Menauhant, Falmouth, Mass.

Dear Sir:

On behalf of the Board of Selectmen, the Waterways Committee of the Town and the Harbor Master Department I wish to request a Federal Navigation Improvement Project under Section 107 of the 1960 River and Harbor Act.

The location where Federal Assistance is needed is the entrance channel and sections of Eel Pond, Menauhant as shown on the accompanying U.S.G.S. map.

This area has been a troublesome one for years and has become a major hazard to navigation and whose correction has gone beyond the financial resources of the Town.

In our opinion the proposed project meets the criteria established by Section 107, namely:

1. It would be a complete project providing a solution to a long standing navigational problem. This would include a safe entrance channel protected by jetties, and a protected anchorage basin allowing free use to thousands of recreational boaters. It would provide an ideal anchorage and harbor of refuge for this geographical location.

2. The proposed project would preserve and add to the economic welfare of the Town and particularly to the welfare of thousands of tax paying boat owners and property owners.

3. The completed project should not exceed the maximum established cost under Section 107.

I can assure you that sponsorship by properly constituted local bodies is available and they are anxious to cooperate in any way.

I shall hope to hear from you soon on behalf of the Board of Selectmen, The Falmouth Waterways Committee, concerned citizens of the area and myself.

Very truly yours,

Henry E. Madden, Chief Harbormaster
TOWN OF FALMOUTH

HEM:md

cc: Congressman Gerry Studds
Board of Selectmen
Waterways Committee

Eel Pond

Mr. Garone:nl:550

NEDPL-C

22 July 1976

Board of Selectmen
Town of Falmouth
Town Hall
Falmouth, MA 02540

Gentlemen:

Recent Congressional action on the Fiscal Year 1977 Budget has enabled the Chief of Engineers to re-activate new starts under Corps of Engineers small projects programs.

As a result, this office is now in a position to initiate the small project navigation study, requested by the 11 December 1975 letter of Mr. Henry Madden, under the authority of Section 107 of the 1960 River and Harbor Act, as amended.

The first phase of the study, the reconnaissance report, will be completed as soon as our manpower capacity permits. The reconnaissance report is simply a compilation of existing information on area usage, navigation difficulties and potential solutions which determines if further detailed study is warranted.

We ask your cooperation in providing relevant information as to the existing conditions in the project area once the reconnaissance report is begun. If you have any further questions, please feel free to call Mr. Anthony Garone at 617-894-2400, Extension 550.

Sincerely yours,

JOSEPH L. IGNAZIO
Chief, Planning Division

cc: Mr. Arpin
Reading File
Plan. Div. File

TMV Arpin

NEDPL-C 11 February 1976

Honorable Gerry E. Studds
House of Representatives
Washington, D. C. 20515

Dear Mr. Studds:

This letter is in further reply to your 31 December 1975 letter regarding a navigation problem at Eel Pond, Menauhant in the Town of Falmouth.

Members of my staff met with officials of the Town of Falmouth on 23 January 1976 at Falmouth Town Hall to discuss the situation and determine what, if any, role the Corps of Engineers has in the problem's solution.

After discussion of alternative solutions for providing satisfactory access to Eel Pond and potential resulting benefits, it was felt that a Federal study of Eel Pond may indeed be warranted.

The Corps of Engineers is authorized to conduct navigation studies by direct Congressional resolution or under the continuing authority of Section 107 of the 1960 River and Harbor Act. The latter allows the Chief of Engineers to study and construct small navigation projects subject to a Federal cost limitation of $1,000,000, without formal Congressional authorization. The situation at Eel Pond meets the criteria for Section 107 projects.

However, the President's FY 1977 Budget contains no provisions for funding of the Corps of Engineers Small Projects Programs of which Section 107 projects are a part. This will require us to suspend all new starts in the Small Projects Programs. A study of Eel Pond falls into this category.

NEDPL-C 11 February 1976
Hon. Gerry E. Studds

A survey study of Eel Pond was authorized by the River and Harbor Act of 14 July 1960. No funds have ever been appropriated to initiate a study of the area under this authority. It is my understanding that officials of the Town of Falmouth were going to meet with you soon after the 23 January meeting and had planned to discuss the situation at Eel Pond with you then.

I hope this information will prove useful.

Sincerely yours,

JOHN H. MASON
Colonel, Corps of Engineers
Division Engineer

cc:
Hon. Gerry E. Studds
Representative in Congress
1143 Washington Street
Hanover, MA 02339

DAEN-CWP-E
Mr. Arpin
Reading File
Planning Div Files

Mr. Andon/dr/550

NEDPL-C

14 March 1978

Board of Selectmen
Town of Falmouth
Town Hall
Falmouth, MA 02540

Gentlemen:

Inclosed for your review and comments is a copy of the Corps of Engineers Reconnaissance Report for Recreational Boat Navigation Improvements in Eel Pond, Falmouth, Massachusetts. The report is a result of a study completed in response to a formal letter request dated 11 December 1975 by the town of Falmouth and was made under the authority of Section 107 of the 1960 River and Harbor Act. Report findings indicate that further detailed study of Eel Pond is warranted.

I would like to request that any comments concerning the findings of the report be made available to this office within two weeks. If comments received are favorable, the reconnaissance report will be submitted to the Chief of Engineers in Washington, D.C. for approval and for placing on the list of 107 studies awaiting funding for detailed design work. You will be kept informed of any substantive action.

Should you wish to pose any questions, please call Mr. Steven Andon at (617) 894-2400, extension 550.

Sincerely yours,

RALPH T. GARVER
Colonel, Corps of Engineers
Deputy Division Engineer

Incl
As stated

cc: Mr. Arpin
Planning Div. Files
Reading Files

WATERWAYS COMMITTEE
TOWN OF FALMOUTH
SCRANTON AVENUE
FALMOUTH, MASSACHUSETTS 02540

April 25, 1978

Colonel Ralph T. Garver
Department of Army
Corps of Engineers
424 Trapelo Road
Waltham, Ma. 02154

Dear Sir:

Attention NEDPL-C

The Board of Selectmen, the Waterways Committee, and the Harbor Master Department of the Town of Falmouth have reviewed the Small Boat Navigation Project Reconnaissance Report for Eel Pond and are in agreement with the report and find it acceptable to the Town.

The above, on behalf of the Town of Falmouth, request that the report be submitted to Washington for approval for funding for detailed design work.

Yours truly,

H. E. Madden, Harbor Master
For Waterways Committee

HEM/jf

Board of Selectmen

George Lentz

Heather McArthur

Wm. D. Jones D.V.A.

CERRE-CS (30 May 1978) 1st Ind
SUBJECT: Eel Pond, Falmouth, MA

DA, Coastal Engineering Research Center, Kingman Building, Ft. Belvoir, VA 22060 10 July 1978

TO: Division Engineer, U.S. Army Engineer Division, New England
424 Trapelo Road, Waltham, MA 02154

1. The Eel Pond Reconnaissance Report has been reviewed by members of the CERC staff and the proposed plans of development noted. We concur that further study is needed to better define the hydraulics and stability of the entrance channel. Therefore, the research program mentioned in your letter should be a site specific study, including the collection of water level and current data, to assure adequate design of navigation improvements. We would be happy to assist you in designing such a study upon completion of the hydrographic survey you are planning.

2. To provide wave data in advance of more detailed site studies, it is recommended that NED establish a visual wave observation station at Menauhant under CERC's Littoral Environment Observation (LEO) program. A local volunteer should be recruited to make daily observations and record them on LEO forms (sample attached as Incl 3). CERC analysis of these data on wave climate would be extremely useful in design of improvements at the entrance. Please contact Ms. Christine Schneider (202) 325-7135, if you are interested in initiating the observations.

1 Incl
wd Incl 1 & 2
added Incl 3
as

JOHN H. COUSINS
Colonel, Corps of Engineers
Commander and Director

DAEN-CWP-E (24 May 78) 1st Ind
SUBJECT: Eel Pond, Falmouth, Massachusetts, Reconnaissance Study

DA, Office of the Chief of Engineers, Wash D.C. 20314 1 Aug 1978

TO: Division Engineer, New England ATTN: NEDPL-C

1. We approve the subject report as a basis for the preparation of a Detailed Project Report.

2. We establish the following work allowance to cover reimbursement for preparation of the reconnaissance report:

Location	Project No.	Code 902	Amount
Eel Pond, Falmouth, Massachusetts	87199	216	$ 5,000

3. The Resource Management Office will allot $5,000 under appropriation 96X3122, Construction, General, to the New England Division by separate communication.

4. Your requirement for Fiscal Year 1979 funding will be considered when the amount to be appropriated nationwide for the Section 107 authority is known.

FOR THE CHIEF OF ENGINEERS:

Ted C Bishop COL CE

wd all incl

ALEX SHWAIKO
Chief, Planning Division
Directorate of Civil Works